**Group Members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**atmosphere and Meteorology Project**

**3.a.1-3**

**General Directions**: Your group will be given three of the Virginia Beach Objectives related to this unit. Your group will be responsible for **researching the objectives, creating a lesson and developing an activity** to teach the three objectives you have been assigned to the rest of the class. Guiding questions have been provided to help you cover each objective. You will be using a PowerPoint slideshow to use as a visual aid to teach the lesson.

**Step 1**: Research your objective using books and resources provided (Databases located at <https://destiny.vbcps.com> ). Take notes. Be sure to answer the guiding questions in a way that you can easily explain to your classmates. Diagrams, charts and graphs are great tools to visually interpret information. **Collect citation information and save to a location you can access (jump drive, H Drive or SharePoint).**

**Step 2:** Organize your information so that you can easily share it with others. Develop a PowerPoint presentation with your group to cover your topic. All group members must contribute to the PPT and participate in the presentation. Use the following format as a template for your PowerPoint.

PowerPoint format :

Slide 1-State Key Concept/Topic

Slide 2:  State objective

Slide 3-4:  Guiding Question with 3-5 bullet points

Slide 5:  State Objective

Slide 6-7:  Guiding Question with 3-5 bullet points

Slide 8:  State Objective

Slides 9-10:  Guiding Question with 3-5 bullet points

Slide 11:  Bibliography

Relevant photos/pictures throughout

**Step 3:** Develop activity to be used by classmates during lesson. All group members must contribute to the activity.

Activity:

Include a depth/altitude graph with 3 pertinent questions that can be answered using the graph.

Develop an atmospheric timeline with 3 key missing events for students to fill in.

Make a diagram of atmospheric layers. Leave 3 labels incomplete.

**Step 4:** As a group practice teaching your lesson. Remember to use the PowerPoint as a guide, but do not read it to the class.

**ES3.a Evolution, Structure, Composition of the Atmosphere**

**3.a.1 Interpret data from or create a graph or table that shows changes in temperature or pressure with depth or altitude.**

*How do you graph the layers of the atmosphere?*

*What does a graph of the layers of the atmosphere tell us?*

*How can you teach the students how to create or interpret a graph of the layers of the atmosphere?*

**3.a.2 Describe how the Earth’s atmosphere has changed over geologic time including the effects of early geologic and biological activities (oxygen and carbon sinks, photosynthetic organisms).**

*How has the atmosphere changed over time?*

*What events caused drastic changes to the atmosphere?*

*How did geologic and biologic activities impact the atmosphere development?*

**3.a.3 Briefly describe the characteristics of each layer of the atmosphere (including temperature, density, pressure, unique features, and percentage of gases).**

*What characteristics can we use to describe the layers of the atmosphere?*

*How are the layers different and why are these differences important?*

*What patterns can you identify with the layers of the atmosphere?*

*Fast Facts to include in the lesson:*

-The early atmosphere contained little oxygen and more carbon dioxide than the modern atmosphere.

-Early photosynthetic life such as cyanobacteria (blue-green algae) consumed carbon dioxide and generated oxygen.

-It was only after early photosynthetic life generated oxygen that animal life became possible.

-Ozone was necessary for the development of life on Earth’s surface.